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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,685	04/14/2004	Randall J. Calistri-Yeh	55653-017	5370

7590 11/02/2006

McDermott, Will & Emery
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

BUSS, BENJAMIN J

ART UNIT	PAPER NUMBER
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2129

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/823,685

Applicant(s)

CALISTRI-YEH ET AL.

Examiner

Benjamin Buss

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 53-59, 65 and 71 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 53-59, 65 and 71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/14/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/14/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to an AMENDMENT entered 8/18/2006 for the patent application 10/823,685 filed on 4/14/2004. The First Office Action of 4/13/2006 is fully incorporated into this Final Office Action by reference.

5 In the event that Applicant chooses to amend, Examiner suggests further defining these broad terms in the claims:

- closest
- significance
- result
- datasets
- 10 - data points
- computer-readable medium

Status of Claims

Claims 53-59, 65, & 71 are pending.

Priority

15 Examiner acknowledges Applicant's claim for priority based on 09/562,916 filed on 5/2/2000 and 60/177,654 filed on 1/27/2000.

Information Disclosure Statement

20 The information disclosure statement filed 4/14/2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 112

Response to Arguments

25 Applicant's arguments, see pages 8-9, filed 8/18/2006, with respect to claims 53- 55, 57, 65, and 71 have been fully considered and are persuasive. The rejection of claims 53- 55, 57, 65, and 71 under 35 U.S.C. §112, first paragraph, has been withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

5 The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 71 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10 Claim 71 recites the limitation "the query" in line 7 of the claim. There is insufficient antecedent basis for this limitation in the claim. Examiner suggests that Applicant may want to change, "an inquiry" to -- a query -- in line 3 of the claim to remedy this issue.

Response to Arguments

Applicant's arguments, see page 9, filed 8/18/2006, with respect to claim 57 have been fully considered and are persuasive. The rejection of claim 57 under 35 U.S.C. §112, second paragraph, has been withdrawn. The new
15 rejection of claim 71 under 35 U.S.C. §112, second paragraph, has been necessitated by amendment.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

20 Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 53-59, 65, and 71 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The computer system must set forth a practical application of a §101 judicial exception to
25 produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77. The invention is ineligible because it has not been limited to a substantial practical application. An invention directed to selecting abstract datasets or data points is useless in a real world situation. Further adding of selected abstract data points to an abstract dataset is also useless in a real world situation. Additionally generating some abstract result based on the abstract manipulations is also useless in a real world situation.

30 In determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete. If the claim is directed to a practical application of

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the §101 judicial exceptions producing a result tied to the physical world that does not preempt the judicial exception, then the claim meets the statutory requirement of 35 U.S.C. §101.

The phrases 'constructing a semantic vector', 'receiving a query containing information', 'comparing the semantic vector for the query to the semantic vector of each dataset', 'selecting datasets whose semantic vectors are closest to the semantic vector for the query', 'generating a result', 'adding said selected data points to said dataset', 'determining the significance of each data point', 'represents the relative strength', 'combining the semantic vector', 'using a method other than semantic vectors' are not clear in purpose or scope. Other variations on these phrases in the claims do not provide a clear purpose or scope for the claimed invention.

The invention must be for a practical application and either:

- 1) specify transforming (physical thing – article) or
- 2) have the Final Result (not the steps) achieve or produce a
useful (specific, substantial, AND credible),
concrete (substantially repeatable/non-unpredictable), AND
tangible (real world/non-abstract) result
(tangibility is the opposite of abstractness).

A claim that is so broad that it reads on both statutory and non-statutory subject matter must be amended, and if the specification discloses a practical application but the claim is broader than the disclosure such that it does not require the practical application, then the claim must be amended.

Claims that construct data representations, receive queries, construct further data representations, compare data representations, select data based on similarities between abstract representations, generate an abstract result, and combining abstract data are not statutory. In more detail to clarify the issues:

Applicant has provided examples of how to determine the semantic vectors that are "closest" to the semantic vector for the query (Specification, ¶¶[0073] & ¶¶[0105] of the PG-PUB), but no claim limitations are directed to the method actually used by the invention. Examiner finds that the "selecting datasets whose semantic vectors are closest to the semantic vector for the query" is not concrete because it is not clear what measure of closeness Applicant uses. As described and claimed, the "closest" vector could be determined based on Hamming distance, eyeball guesstimation, Manhattan distance, human intuition, Chebyshev distance, etc.

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Applicant has provided examples of how to determine the "significance of each data point" (Specification, ¶¶[0051]-[0056] of the PG-PUB), but no claim limitations are directed to the method actually used by the invention. Examiner finds that the "determining the significance of each data point with respect to the predetermined categories" is not concrete because it is not clear what measure of closeness Applicant uses. As described and claimed, the "significance" could be determined based on frequentist statistical hypothesis testing, human intuition, signal to noise ratio, genetic algorithm search, guess and check, entropy measurement, etc.

Applicant has not shown that the claimed "result" found in claims 53-56, 65, & 71 is relied upon for a practical application. This result is not concrete at least because the "significance" and measure of "closest" are not concrete. This result is not tangible at least because it is merely an abstract result generated by an abstract process that has no grounding in the real world. This result is not useful because Applicant has not provided a real world practical application which relies upon the generated result. The claimed result is not tied to the physical world. Even if the result were proven to be useful, concrete, and tangible, the claims would preempt all possible practical applications of a result from identifying datasets according to a query.

The result of claims 57-59 is merely the addition of "selected data points to said dataset". Applicant has not shown that the resulting claimed "dataset" is relied upon for a practical application. The resulting claimed "dataset" is not tied to the physical world. This resulting claimed "dataset" is not concrete at least because all of the "datasets", the "data points" the "significance", and the measure of "closest" are not concrete. This result is not tangible at least because it is merely an abstract result generated by an abstract process that has no grounding in the real world. This result is not useful because Applicant has not provided a real world practical application which relies upon the generated result. Even if the result were proven to be useful, concrete, and tangible, the claims as currently written would preempt all possible practical applications of adding selected data points to a dataset.

Furthermore, for claims 53, 55-57, 65, and 71: Applicant has provided examples of what the datasets and data points could be throughout the specification (especially ¶¶[0013], [0048], [0050], [0108], [0114], [0118], & [0129] of the PG-PUB), but no claim limitations found in claims 53, 55-57, 65, or 71 are directed to what the datasets and data points of the present invention actually are. Examiner finds that the "datasets" and "data points" are not concrete because it is not clear what they are. As described and claimed, the datasets could be anything from abstract ideas, fruits, term papers, catalogs, photographs, chemical compositions, hair colorings, moods of

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politicians, arbitrary data collected by summing the output of a gyroscope on Mars and a hydrometer in Paris, etc. The data points would then be "information that can be related to the dataset", which, in respect to the above list, could be great thinkers of the 17th century, vegetables, course titles, items for sale, noses of famous people, atoms, chemical compositions, world events, birthdates of quadrupeds, etc.

5 Claim 71 is further rejected as non-statutory for being directed to a "computer-readable medium carrying one or more sequences of instructions" where the specification provides for the computer-readable medium including mediums such as: punch cards, paper tape, any other physical media with patterns of holes, and transmission media such as coaxial cables, copper wire, fiber optics, acoustic or light waves, and carrier waves. Please recognize that for claims where applicant is seeking to patent *functional descriptive material in combination*
10 *with some media*, there are currently three requirements that need to be met, or a rejection is warranted. 1) The media needs to only cover (i.e., be limited to) embodiments which establish a statutory category of invention. The current Office position is that signals, **waves**, radiation and other such media are not physical articles or objects and as such are not manufactures or machines under 35 U.S.C. §101. Since they are clearly not processes or compositions, they fail to fall within a statutory category. 2) The media must be structurally and functionally
15 interconnected with the functional descriptive material in such a manner that it enables the functional descriptive material to act as a computer component and realize it's functionality. The current office position is that signals, **waves**, radiation, wires, fibers, and **printed matter** in and of themselves fail to meet this criteria. As such, no usefulness can be gleaned from the functional descriptive material. 3) The functional descriptive material must provide a practical application of the idea embodied therein when executed as a computer component.
20 The Examiner hopes that this additional detail helps Applicant in determining what claim amendments are necessary. Appropriate corrections are required.

Response to Arguments

Applicant's arguments filed 8/18/2006 have been fully considered but they are not persuasive. Applicant argues that:

25 "It is submitted that the claims are not directed solely to mere ideas, laws of nature, or natural phenomena. Each of the claims falls squarely into one of the classes of subject matter permitted by 35 U.S.C. §101, that is to say process or machine, respectively. Independent claims 53 and 65, for example, are tied to machine-executed steps or a data processing system (machine). Independent claim 71 recites a tangible machine-readable medium, in conformity with *In re Beauregard*, 53 F.3d 1583, 35 USPQ2d 1383 (Fed. Cir. 1995). According to the Beauregard decision, computer
30 programs embodied in a tangible medium, such as floppy diskettes, are patentable subject matter under 35 U.S.C. §101."

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Examiner agrees that claims 53-59 are directed to a process. Examiner further agrees that claim 65 is directed to a machine, namely "a computer configured to: ..." supported by the specification (e.g. ¶¶[0037]-[0038]). However, merely falling into one of the classes of subject matter permitted by 35 U.S.C. §101 is not sufficient, in and of itself, to make a claim statutory.

5 Furthermore, Examiner **disagrees** with the assertion that claim 71 is a process or a machine. Examiner further **disagrees** with the assertion that claim 71 is limited to a tangible machine-readable medium. Examiner agrees with Applicant's assertion that computer programs embodied in a tangible medium, such as floppy diskettes, are patentable subject matter under 35 U.S.C. §101. However, the specification of the instant application describes the computer-readable medium as including mediums such as: punch cards, paper tape, any other physical media
10 with patterns of holes, and transmission media such as coaxial cables, copper wire, fiber optics, acoustic or light waves, and carrier waves. Please recognize that for claims where Applicant is seeking to patent *functional descriptive material in combination with some media*, there are currently three requirements that need to be met, or a rejection is warranted. 1) The media needs to only cover (i.e., *be limited to*) embodiments which establish a statutory category of invention. The current Office position is that signals, **waves**, radiation and other such media
15 are **not** physical articles or objects and as such are not manufactures or machines under 35 U.S.C. §101. Since they are clearly not processes or compositions, they **fail to fall within a statutory category**. 2) The media must be structurally and functionally interconnected with the functional descriptive material in such a manner that it enables the functional descriptive material to act as a computer component and realize its functionality. The current office position is that signals, **waves**, radiation, wires, fibers, and **printed matter** in and of themselves **fail**
20 to meet this criteria. As such, no usefulness can be gleaned from the functional descriptive material. 3) The functional descriptive material must provide a practical application of the idea embodied therein when executed as a computer component. Following Office policy, Examiner maintains that claim 71 is directed to non-statutory subject matter for at least these reasons. Applicant's arguments continue:

25 "Also, as amended, each of the independent claims describes a process to efficiently identify at least one data set, such as documents, from a collection of datasets according to a query containing information indicative of desired datasets; or machine-executed steps to find; or to efficiently identifying data points in a semantic lexicon related to a dataset. The described steps construct a semantic representation (semantic vector) for each dataset, select datasets whose semantic vectors are closest to the semantic vector for the query, and generate a result including information of the selected datasets according to a result of the selecting step. The claims also specify how semantic vectors are constructed. It is respectfully submitted that generating representative semantic vectors for datasets and identifying at least one data set
30 from a collection of datasets according to a query containing information indicative of desired datasets, based on computer processing produces allows efficient grouping of data, which improves a machine's efficiency in identifying or retrieving data according to a query. Accordingly, the claims describe process that creates a "useful, concrete and

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tangible result" analogous to the transformation of discrete dollar amounts into a final share price, which the Federal Circuit found to be a sufficiently "useful, concrete and tangible result" in *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998). Furthermore, generating representative semantic vectors based on, computer processing of information to differentiate between related and non-related datasets produces a "useful, non-abstract result" analogous to the method of adding a data field with information on long distance providers, which the Federal Circuit found to be a "useful, non-abstract result that facilitates differential billing of long-distance calls," which "fall[s] comfortably within the broad scope of patentable subject matter under § 101." *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 50 USPQ2d 1447 (Fed. Cir. 1999)."

10 Examiner **disagrees**. For claims 53-56, 65, & 71, the claimed "result" in is not useful, concrete, and tangible. Applicant has not shown that the claimed "result" is relied upon for a practical application. **The claimed result is not tied to the physical world**. This result is not concrete at least because all of the "datasets", the "data points" the "significance", and the measure of "closest" are not concrete. This result is not tangible at least because it is merely an abstract result generated by an abstract process that has no grounding in the real world. This result is

15 not useful because Applicant has not provided a real world practical application which relies upon the generated result. Even if the result were proven to be useful, concrete, and tangible, the claims as currently written would preempt all possible practical applications of a result from identifying datasets according to a query.

Alternatively, the result of claim 57-59 is merely the addition of "selected data points to said dataset". This result is also not useful, concrete, and tangible. Applicant has not shown that the resulting claimed "dataset" is

20 relied upon for a practical application. **The resulting claimed "dataset" is not tied to the physical world**. This resulting claimed "dataset" is not concrete at least because all of the "datasets", the "data points" the "significance", and the measure of "closest" are not concrete. This result is not tangible at least because it is merely an abstract result generated by an abstract process that has no grounding in the real world. This result is not useful because Applicant has not provided a real world practical application which relies upon the generated

25 result. Even if the result were proven to be useful, concrete, and tangible, the claims as currently written would preempt all possible practical applications of adding selected data points to a dataset.

Although the claims do specify how the semantic vector(s) are constructed, neither the claims nor the specification describe the construction of the semantic vector(s) with sufficient specificity to ensure that the construction is concrete (substantially repeatable/non-unpredictable). Furthermore, it appears that the Final Result

30 of the claims is not the semantic vector(s) which are constructed, but either generated "result" (which Examiner maintains is not shown to be useful, concrete, and tangible in this case) or the addition of "selected data sets to

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said dataset" (which Examiner maintains is merely an abstract idea that is not useful, concrete, or tangible). In either case, the Final Result is not useful, concrete, and tangible.

Examiner has not found a claimed Final Result in any of the pending claims which is analogous to the very specific examples cited by Applicant. We hold that the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces "a useful, concrete and tangible result"--a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades. That final share price is tied to a specific practical application in the physical world. Likewise, the differential billing of long-distance calls is a specific practical application in the physical world. Examiner sees no such specific practical application in the physical world in tied to the Final Result of Applicant's currently pending claims. Applicant's arguments continue:

"Additionally, the issuance of Liddy (U.S. Patent No. 5,963,940) and Hazlehurst (U.S. Patent No. 5,974,412) patents, both related to using computer systems to search similar documents or datasets, and cited by the Examiner to be related to the technical art described in this application, confirms that the USPTO has long considered that the technologies as claimed in the instant application are directed to patentable subject matter."

Examiner is not saying that it isn't possible to have a computer system which searches documents be considered statutory. The Examiner is not saying that the claims found in the instant application cannot be amended to cover statutory subject matter based on the specification as filed. Examiner is following Office policy in analyzing the claims. Examiner finds that the claims are not statutory. The rejection of claims 53-59, 65, and 71 under 35 U.S.C. §101 is **MAINTAINED**.

Claim Rejections - 35 USC §102 and §103

Response to Arguments

Applicant's arguments, see pages 8-9, filed 8/18/2006, with respect to claims 53-59, 65, and 71 have been fully considered and are persuasive. The rejections of claims 53-59, 65, and 71 under 35 U.S.C. §102 and §103 have been withdrawn.

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Doerre (USPN 6,446,061)
- Bartell (USPN 5,625,767)

5

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

10

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15

Claims 53-59, 65, & 71 are rejected.

Correspondence Information

20

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin Buss whose telephone number is 571-272-5831. The examiner can normally be reached on M-F 9AM-5PM.

25

As detailed in MPEP 502.03, communications via Internet e-mail are at the discretion of the applicant. Without a written authorization by applicant in place, the USPTO will not respond via Internet e-mail to any Internet correspondence which contains information subject to the confidentiality requirement as set forth in 35 U.S.C. 122. A paper copy of such correspondence will be placed in the appropriate patent application. The following is a sample authorization form which may be used by applicant:

"Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with me concerning any subject matter of this application by electronic mail. I understand that a copy of

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these communications will be made of record in the application file."

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent can be reached on 571-272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

5 Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

10

Benjamin Buss
Examiner
Art Unit 2129

BB


10/26/06
DAVID VINCENT
SUPERVISORY PATENT EXAMINER